Disaster Risk Insurance As an Instrument Risk-Based Pricing Vs. Distributive Justice: Potential Trade-Offs

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ABSTRACT: Recently disaster risk insurance has received increasing attention scrutinizing its capacity to serve other purposes than transferring risk. The main objective pursued by many policy makers, economists and insurers is to create more efficient systems able to foster risk reduction by means of risk-based premiums. At the same time, government involvement is a frequent practice in disaster insurance schemes, in order to make them economically feasible. Public involvement however, requires for an insurance arrangement to not only be economically, but also socially feasible.

It is thus important to explore the implications of different design choices in public-private insurance arrangements both for their efficiency and potential to foster risk reduction and equity (distributive justice). What do these terms mean in the context of disaster insurance? I will present results from a top-down study of 20 national insurance arrangements across the Western world, as well as three European bottom-up case studies. These will help illustrating the potential trade-offs between these two and other objectives. Our findings show, that there are ways to achieve both objectives, although not necessarily by means of risk-based pricing. Questions remain as to the applicability of our results under different economic, cultural and political circumstances.

Keywords: Insurance, Disaster Risk, Risk Reduction, Risk-Based Premiums, Distributive Justice

1. INTRODUCTION

In the face of increasing losses from floods, windstorms, droughts and other extreme weather events, and the expectation that losses will continue to rise as a result of socio-economic and climatic changes, governments and insurers are considering new or reformed disaster insurance programs that can equitably and efficiently pay the costs. Equity in the sense of supporting disaster victims who are least able to purchase insurance or otherwise cope with disasters is a fundamental consideration with regard to both taxpayer-based post-disaster assistance and insurance-based national systems that include premium subsidies. However, critics claim that post-disaster public assistance and premium subsidies are inefficient in the sense of reducing private responsibility for losses and thus lessening incentives for reducing risks. To promote efficiency, the authorities in many countries are asking whether or how they can lessen public support and encourage non-subsidized or risk-based insurance premiums. Risk-based insurance premiums, however, can place an unaffordable burden on the most vulnerable. Balancing efficiency and equity is arguably the most fundamental challenge facing public authorities in the design of national catastrophe insurance systems.

The recent reform of the U.S. National Flood Insurance Program (NFIP) can serve to illustrate this challenge. After Hurricane Sandy left a path of destruction along the coasts of New Jersey and New York in 2012, damaged households received extensive public assistance as well as insurance payments from the NFIP (Kousky and Michel-Kerjan, 2012). Fearing that houses would be rebuilt in the same high-risk zones, the U.S Congress passed legislation that would move the NFIP towards risk-based pricing, making it unaffordable for many victims to rebuild their homes along the coast. After considerable political pressure from representatives of the hurricane victims, many of whom could not afford to rebuild with risk-based insurance pricing, the legislation was repealed.

The trade-off between establishing an affordable disaster-financing system and encouraging households and businesses to re-locate out of high-risk areas and take other measures to disaster-proof their assets is not unique to the US. Many developed and developing countries, including most recently the UK, Finland, Romania, and China, are reforming their national disaster financing systems with the conflicting purposes of providing affordable insurance and creating incentives for reducing risk. The same tradeoff characterizes those countries without national insurance systems, like Austria and the Netherlands, where disaster victims rely primarily on taxpayers for post-disaster support. Although not explicitly mentioned, the equity-efficiency tradeoff will also delineate the implementation of recent international agreements including the Sendai Framework for Disaster Risk Reduction 2015-2030 that draws explicit attention to insurance mechanisms and the need for incentives for private disaster risk reduction investment, and the Paris climate agreement (2015) that includes in Article 8 “(r)isk insurance facilities, climate risk pooling and other insurance solutions” as areas of action (UNFCCC, 2015).

The purpose of this presentation is to discuss the design and reform of national risk financing systems by documenting how the efficiency-equity tradeoff has been conceptualized historically, how it manifests in current debates and practice, how national insurance systems can be designed to minimize the tradeoff, and the implications for the Loss & Damage Mechanism. Our focus is on floods since

there is extensive experience across the world with public and private flood financing programs.

2. EQUITY VS. EFFICIENCY

Efficiency in its broadest sense means reaching a desired result or objective at the lowest cost, effort or expenditure of resources. The cornerstone of the neo-liberal model of efficiently allocating society's resources is setting a price that reflects the social cost of the resource. As an analogy, if water is priced to reflect its scarcity, it will be allocated to its most productive uses, and conserved if the social costs are greater than the benefits; the same is true with risk. *If the goal is cost-effective risk reduction*, then placing a price on risk to reflect its social cost will, in theory, achieve this goal, that is, expenditures on risk mitigation will be such that the marginal cost of the expenditures are equivalent to their marginal benefit. Below and above this point is an under- and over- investment in risk reduction, respectively. This means insurance, to be efficient, should be priced according to expected losses (plus transaction costs), or what is referred to as risk-based, actuarial or technical risk pricing. Risk-based pricing requires that risks be assessed and categorized into different risk classes.

In recent literature equity has emerged with the necessity of insurance affordability, but recognizing the commitment to avoid price distortions by keeping transfers or distributions to those in need separate from insurance premiums. Picard (2008) defines efficiency as effectiveness in risk-prevention, and equity as equality in the distribution of the disaster burden. He proposes risk-based pricing, but supplemented by subsidies to low-income households. Michel-Kerjan and Kunreuther (2011) recommend that the US National Flood Insurance Program combine a risk-based approach (pricing based on risk zones and incentives for risk reduction at community level) with subsidies to account for the needs of low-income households in flood risk areas. Subsidies will also distort prices and incentives unless they are not proportional to the premium, that is, if low-income homeowners retain the same subsidy even if they reduce their potential losses. Michel-Kerjan and Kunreuther for this reason recommend a flood insurance voucher program to address issues of equity and affordability to complement the strategy of risk-based premiums.

3. METHOD

We supplement our conceptual thinking with empirical evidence from the recent research project InsAdapt. For this project we reviewed 20 national insurance and disaster relief arrangements with a focus on flood risk. We collected data by means of a comprehensive literature review and desktop research including also the official information provided online by insurers and national governments. Complementary, we conducted semi-structured and unstructured interviews with insurers, policy makers and stakeholders in order to complement information gaps. Insurance practice varies a lot depending on insurance companies, jurisdiction, and even individual cases; at the same time reform efforts are ongoing in many countries. The picture we provide is thus as complete as possible, reflecting many trends, but there are still information gaps, which we could not fill. Juxtaposing this top-down investigation with a bottom-up perspective on insurance and disaster relief systems, we conducted standardized surveys in three of the countries reviewed, Romania, England and Austria. For each of the three countries we collected additional background information on disaster risk management practices, in order to best interpret the survey results.

4. RESULTS

Across systems in the developed world we found increasing efforts to move towards market-based systems. However, few countries manage this without significant levels of public regulation and partial public liability. Necessary government involvement means that providing solidarity in the form of ex-post assistance and/or state guarantees thus remains important.

It is difficult to find systems with fully risk-based premiums. This however does not indicate an attitude of providing more equitable conditions for insurance purchase, but reflects much more the need to guarantee affordability and/or unwillingness of insurers to take on the additional effort of full risk-based pricing. The latter would require additional capacities for individual risk assessment. Partial risk-based pricing using risk zones (e.g. Germany and Czech Republic) or Postal Codes (UK) as reference for premium-setting seems to be a more feasible approach. We may argue that this, although inadvertently, would lead to an increase in distributive justice as it result in cross-subsidies within equally priced risk-zones.

The majority of households believe that solidarity is important in the case of catastrophic damages, although there are differences across countries. These differences are reflected to a small extent in the design of the system. Although we find that in the cases of Austria, Romania and England, the solidarity based schemes perform equally well or even slightly better in providing incentives for risk reduction.

The main message to emerge from the theory and practice is that despite recent emphasis on disaster risk financing systems that purport to reduce overall disaster losses through actuarial pricing of insurance premiums, evidence shows that equity remains a valued consideration in designing national systems. Moreover, recent evidence shows that the equity-efficiency tradeoff may not be as pronounced in practice as in theory, and in some notable cases systems exhibiting solidarity combined with effective regulation appear to outperform systems that price risks efficiently.

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